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Microsoft plans new version of Windows

Microsoft plans to launch another new version of Windows within months of releasing the long-awaited Windows Vista. Windows Home Server is designed to run at the centre of a household, storing files such as music, movies, digital photos and other personal content. The idea is that family members can share files easily using a variety of devices, as well as making them available to others over the internet.

Microsoft chairman Bill Gates previewed the new operating system at the Consumer Electronics Show (CES) in Las Vegas. The software is a version of Windows Server 2003 that has been customised to make it easy for non-technical people to back up, organise and share their personal files.

The idea of a home server is not new, and Sony has been touting the idea since at least 1999. However, consumers have so far preferred to store data on individual computers rather than a central repository.

Microsoft believes that home servers will become more popular and estimates that there are already over 40 million people with PCs connected to broadband who have two or more PCs in their homes. The company claims that these households want a safe, easy-to-use way to store and share valuable personal items such as multimedia and household documents.

"As computers and digital media become more and more central to family life, we need better ways to organise, share and protect digital content and information," said Gates. "Windows Home Server makes it easy for families to save, protect and access digital memories... so they can focus on using technology to organise their day-to-day lives, explore their interests and share their memories."

People will be able to access their files both over a local network and via the internet, while also allowing others access. They won't even need a PC to do so, as Windows Home Server (WHS) supports the Xbox 360, the portable Zune media player and other mobile devices. "Windows Home Server customers can use a personalised Windows Live internet address to connect to Windows Home

Server from outside of the home. As a result, they can share photos with friends and family and enjoy their music and videos. Families can use the Xbox 360 video game and entertainment system or other Windows Media Connect-supported devices to view or listen to digital media stored on Windows Home Server as well. They can also connect a printer to Windows Home Server in order to print from any connected PC in the home," said Microsoft in a statement.

Windows Home Server (WHS) will be available towards the end of this year, both as standalone software and pre-loaded on specialised PC hardware produced by partners. One partner, HP, showed off a system called the HP MediaSmart Server, which contains four hard disk bays to offer potentially enormous quantities of storage space. AMD, Inventec and Quanta have all announced hardware designs for third-party PC vendors to build their own WHS systems.

Microsoft has worked for over two-and-a-half years to make the operating system's interface simple enough for non-technical home users. The stripped-down interface is based around tabbed menus, each of which offers a few simple choices. Microsoft executives acknowledged that this will initially appeal only to home entertainment enthusiasts. However, the company also claims that once mainstream consumers become aware of useful features such as automatic backups, they will find it an attractive idea.

Microsoft has not yet indicated any pricing details.



▲ Bill Gates unveiled Windows Home Server during his CES speech

Apple TV puts iTunes on the TV

If running iTunes on your PC to manage your iPod's files, you can now use it directly from your television. Apple TV is a £199 set-top box that wirelessly streams iTunes content to your TV. It works with both PCs and Macs, turning them into home media servers for your home entertainment system.

"Apple TV is like a DVD player for the 21st century – you connect it to your entertainment system just like a DVD player, but it plays digital content you get from the internet rather than DVDs you get

from a store," said Apple CEO Steve Jobs. "Apple TV plays the same iTunes content that users enjoy on their computers and iPods, so now they can watch part of a movie in their living room, and watch the rest later on their iPod."

The Apple TV uses the 802.11n WiFi standard to synchronise files with up to five PCs. It then plays back the content through a regular or high-definition TV. It looks like a thinner Mac mini, comes with a remote control and has a 40GB

hard disk that can store up to 50 hours of VGA video, 9,000 songs or 25,000 pictures.

While Apple has won plaudits for the Apple TV's slick interface and ease of setup, it has been criticised for being able to serve content that can only play back on an iPod. If you make a home movie and want to use Apple TV to play it on your TV, you'll need to convert it to an iPod-compatible format. Apple has yet to offer much video content to download from the iTunes Store outside the US.

Google Earth images 'used by Iraqi insurgents'

Google Earth has censored satellite pictures of British bases in Iraq after requests from UK authorities, who said that insurgents were using them to plan attacks.

British forces were taken aback when they found detailed satellite photos of their bases during raids on insurgents' homes in the southern Iraqi city of Basra. "This is evidence as far as we are concerned for planning terrorist attacks. Who would otherwise have Google Earth imagery of one of our bases? We believe they use Google Earth to identify the most vulnerable areas such as tents," an intelligence officer told the *Daily Telegraph*.

Google acknowledged that it had been approached by the UK government and said that it "listened to requests from governments". It has also blanked out sensitive sites in the UK, such as the GCHQ premises in Cheltenham and parts of the Trident nuclear submarine base in Faslane, although it has left much of the main base and the neighbouring peace camp intact.

The Basra incident is the latest example of the uneasy relationship between technology firms and governments. Google has had several battles with the

US government over demands for information on its customers and has been accused of helping the Chinese government suppress free speech.

Microsoft recently acknowledged that it cooperated with the US National Security Agency (NSA) when designing Windows Vista. The NSA is best known for eavesdropping on US citizens as part of the 'war on terror'.



▲ Google Earth images of potentially sensitive military sites are to be censored following official requests

Buttonless iPhone "works like magic"

Apple has finally unveiled the iPhone, a combined music player and smartphone that replaces traditional buttons with a touch screen. If it proves popular, the design of mobile phones could change radically, opening wider possibilities for carrying powerful computing capabilities in a pocket.

The release of the iPhone signals the start of a battle for control of the most important popular technology platform in the world, with phone companies on one side and the music player and PC industries on the other.

At its most basic, the iPhone is a quad-band smartphone that can play music, take photos, handle text messages, browse the internet and provide free BlackBerry-style push email. It also has some extra features, such as Google Maps. It's not cheap, though, at \$499 (around £255) plus a two-year contract with US mobile operator Cingular Wireless for the entry-level 4GB model.

However, the phone's different interface and ease of use promises to shake up the entire industry. In stark contrast to the complex hardware designs that typify

today's handsets, the iPhone is stark, with just a 3.5in touch-sensitive screen and a single on-off button on its front.

The iPhone's screen displays context-sensitive inputs, so there's a number pad if you want to use the phone and a keyboard for composing text messages, while the web browser is controlled by finger movements to zoom into parts of webpages.

Jobs claimed that the touch screen would be easier to type on than the tiny keys found on today's handsets. "It works like magic. It's far more accurate than any touch display ever shipped. It ignores unintended touches. It's super smart," he said.

"The iPod changed everything in 2001. We're going to do it again with the iPhone in 2007," said Jobs, and the markets seemed to agree. The day after the preview Apple's shares soared to record levels, while the big phone-makers all suffered falls.

US technology analyst Tim Bajarin at Creative Strategies was impressed. "This goes beyond smartphones and should be given its own category called 'brilliant' phones," he said.

• See *Analysis*, page 199.



New chips bring faster notebooks

New processors developed by Intel will run cooler and 30 per cent faster than current models, thanks to a more efficient fabrication process.

Intel claims that it is close to launching the first processors based on a 45nm fabrication technology. Today's Core 2 Duo processors use a 65nm process.

The new chip is codenamed Penryn and has already been used successfully to run Windows Vista, Linux and Mac OS X. Intel says it expects to start production of 45nm silicon in the second half of 2007, making one million 45nm processors available by July.

Penryn is an updated version of the Merom, a range of 65nm Core 2 Duo processors used in most of today's notebooks. Moving to 45nm will help Penryn realise performance gains of around 30 per cent, as well as running cooler and improving battery life. Intel says most of its processors will be made using 45nm fabrication by 2008.

Intel's fast adoption of smaller manufacturing processes for processors has helped it to claw back market share from AMD, which produced its first 65nm processors in December. However, AMD plans to produce 45nm processors in partnership with IBM by mid-2008.

IN BRIEF

» WINDOWS VISTA FINALLY LAUNCHED

After five years of development, Windows Vista was launched on 30th January. Although the operating system was released in November 2006 for business customers, the OS is now available for home users too.

Despite the delays – Windows Vista was originally supposed to have appeared in March 2005 – Microsoft has high hopes for the operating system.

Research firm IDC believes that Windows Vista will be installed on more than 100 million computers worldwide. Windows in earlier incarnations already sits on more than 90 per cent of the world's computers, it reported.

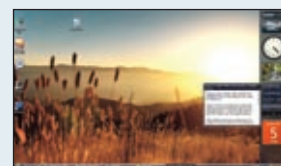
Microsoft has described Windows Vista and 2007 Office, which was also launched at the same time, as the "most thoroughly tested software releases" in the company's history.

Vista has increased security over previous versions, including a new User Account Control system that prevents malware from running riot on the computer. It also has improved search facilities and includes a new user interface, Aero, with translucent windows and three-dimensional scrolling.

Microsoft recommends a minimum of 1GB of RAM for Vista PCs, although it will run with 512MB. In fact, it won't install on systems with less than this amount so you won't be able to use it with very old systems, even if you are prepared to put up with poor performance.

"Windows Vista and Microsoft Office 2007 will transform the way people work and play," declared Bill Gates. "Millions of consumers had a hand in helping us design, test and create the most exciting versions of Windows and Office we've ever released. Windows Vista and Microsoft Office 2007 squarely address the needs and aspirations of people around the globe."

Vista is available in four editions: Home Basic, Home Premium, Business and Ultimate. The prices, including VAT, are £180, £220, £290 and £370 respectively. Upgrades will cost £100, £150, £190 and £250.



IN BRIEF

» TOMTOM DEVICES INFECTED BY TROJANS

Satellite navigation company TomTom has admitted that a number of its devices are infected with malware, following an investigation by a security expert. The viruses were shipped with the TomTom GO 910 model but do not affect the operation of the device, according to the manufacturer.

According to a posting on tech blog Daniweb, once the TomTom device is connected to a PC running Windows, anti-virus software on the computer immediately flags up two alerts identifying the win32.Perlovga.A Trojan and TR/Drop.Small.qp as being resident on the GPS device's hard drive.

A spokesman for the company said that only a small number of devices produced between September and November 2006, running TomTom's software version 6.51, had been affected by the Trojans.

He said that there was only a low risk to customer's computers or the device itself. "To date, no cases of problems caused by the viruses are known," he said.

» CRACKED VISTA CONTAINS MALWARE

People searching the internet for pirated copies of Microsoft's Windows Vista should avoid downloading illegal versions of the software, a security expert has warned.

Around half of all downloads of what are claimed to be copies of Microsoft's new operating system are actually malware, according to John Safa, security expert and chief architect at firewall security company DriveSentry.

Weeks before the operating system was launched chat forums, discussion boards and peer-to-peer networks were bombarded with messages advertising free, 'cracked' copies of the software.

Safa said that malware writers are using the promise of free software to lure unsuspecting users into downloading a Trojan. The victim then finds that the Trojan encrypts their data and a ransom note is displayed threatening to destroy the data unless the victim pays up.

"Approximately 50 per cent of the Vista cracks we tested from popular file-sharing tools are really Trojan horses," said Safa.

Confusion over format of next-generation DVD

Movies and computer games have started appearing on a new disc format with a much larger storage capacity, enabling them to hold higher-resolution content and more episodes of TV series. However, there's more than one format from which to choose.

The two battling formats are Blu-ray and HD-DVD. The Blu-ray Disc Association (BDA) held a press conference at the Consumer Electronics Show (CES) last month, claiming victory over its HD-DVD rival. After a slow start, December sales of Blu-ray discs were higher than those for HD-DVD for the first time. This is thanks to backing from Hollywood studios including Disney, MGM, Paramount, Sony, Warner and Fox.

The BDA's US Promotion Committee chairman, Andy Parsons, said Blu-ray not only enjoys this "content advantage" over HD-DVD, but also has the benefit of backing from PC giants including Dell, HP and Apple. The launch of Sony's PlayStation 3, which comes with a Blu-ray drive, is a "killer blow" for HD-DVD, he said.

However, announcements from BDA members at CES told a different story, indicating that the battle is far from over. Warner Brothers said it planned to release movies on discs that play in both Blu-ray and HD-DVD players. Its new disc format is called Total

HD. "The next best thing [to one HD disc format] is to recognise that there will be two formats and to make that not a negative for the consumer," said Warner CEO Barry Meyer.

Warner's move indicated a recognition that consumers will continue to use DVD while buying HD movies remains a gamble. "From our perspective, we don't care if it's Blu-ray or HD-DVD. We just want the transition to occur," said Kevin Tsujihara, president of Warner Bros Entertainment. Meanwhile another BDA member, LG Electronics, used CES to launch the first player capable of playing Blu-ray and HD-DVD discs in an attempt to "end the confusion and inconvenience of competing high-definition disc formats". Samsung also promised to produce a dual-format player.

Blu-ray also faces adversaries in the form of powerful HD-DVD supporters such as Microsoft, Intel and, perhaps most importantly, the adult entertainment industry. The world of porn is widely credited with helping VHS win out against Betamax in the video tape standard wars several decades ago. However, Sony has forbidden Sony DADC, its Blu-ray disc-replicating division, to take orders from porn movie studios. This has led pornographers to adopt the rival HD-DVD format.

IE declared unsafe for most of 2006

Microsoft's leading web browser, Internet Explorer, was "unsafe" to use for 284 days during 2006 because the company failed to release patches to fix documented vulnerabilities quickly enough. That's the conclusion of research conducted by the *Washington Post*, which examined information freely provided by Microsoft and security experts. This research relates to versions of Internet Explorer (IE) earlier than the latest version 7 release.

"For a total 284 days in 2006 (or more than nine months out of the year), exploit code for known, unpatched critical flaws in pre-IE7 versions of the browser was publicly available on the internet. Likewise, there were at least 98

days last year in which no software fixes from Microsoft were available to fix IE flaws that criminals were using to steal personal and financial data from users," warned Brian Krebs, who headed the research.

Krebs said he "found it took an average of 113 days for Microsoft to issue critical updates in 2006. I only looked at patches that were labelled 'critical' by Microsoft," he explained. A subset of these critical vulnerabilities is particularly important when exploits for them are discovered on the internet. Microsoft lists these flaws in a bold font to highlight them.

"If you look at all critical IE flaws Microsoft patched in 2006 (not just the bolded ones), Microsoft took about 90 days to

push out an update. However, when it came to the most serious IE flaws (those in bold), Microsoft shipped a fix in about 40 days," wrote Krebs on his blog.

In November, Microsoft launched Internet Explorer 7, which it claims is far more secure than Internet Explorer 6. The company said more than 100 million people downloaded it in the first two months of its release.

"If you're using IE6 and haven't upgraded to IE7 yet, stop fiddling around. If you're using an older version of Windows (IE7 doesn't work on anything older than XP), I would run – not walk – away from IE in favour of just about any other browser," said Krebs, who does most of his browsing with Firefox.

Special Extras for Windows Vista users

Microsoft chairman Bill Gates has announced new free downloads for customers running Vista Ultimate Edition. The add-ons, known as Vista Ultimate Extras, include GroupShot and DreamScene. GroupShot is an image-editing utility that makes it possible to create a "perfect group photo out of a series of photos".

"With Group Shot, you can select your favourite parts in each shot of the series and Group Shot will automatically build a composite image," said Microsoft. DreamScene makes it possible for the adventurous user to replace the traditional still images used as desktop wallpaper with moving video.

Microsoft plans to release new downloads regularly to reward customers who have chosen to install the most expensive version of Windows. It also announced plans to make Windows Vista and Office 2007 available as downloads, although it will cost the same as buying the products on DVD.

Microsoft is shipping all the different versions of Windows Vista on a single DVD. Customers who decide to upgrade to a more powerful edition of Vista can select the Windows Anytime Upgrade option to unlock the code, rather than having to download large files or upgrade the operating system using another CD or DVD.



Developing world notebook previewed in Las Vegas

The first cheap \$100 (around £51) laptops designed for the developing world should be delivered by July. The One Laptop Per Child (OLPC) project also claimed test machines should be ready by late February. Visitors to January's Consumer Electronics Show (CES) in Las Vegas tried out pre-production models. Quanta Computer, contracted to manufacture the notebook PC, plans to manufacture several million units this year.

The XO notebook is based on a 366MHz AMD processor and comes with 512MB of Flash storage, two USB ports and built-in wireless networking. It has no moving parts and has been specially ruggedised to survive in hostile conditions.

The laptop runs Linux and open-source applications. OLPC also unveiled a new graphical user interface called Sugar, which it described as a "purpose-built educational environment for children using laptops".

"The desktop metaphor familiar to most laptop users today may make sense in business

settings, but it's not geared for children collaborating with each other and their teachers," said Walter Bender, OLPC's president of software and content. "With Sugar, we've created something new and suited to the way children understand and describe their world and relationships. Most importantly, Sugar is easy for children to learn to use, yet it's also rich and capable of fostering unbounded discovery, learning, and exploration.

"In Sugar, the interface hosts four discrete views: home, friends, neighbourhood and activity. Each of the views relates to a goal of the OLPC project and enhances learning by fostering communities and social networking, and by enabling access to large repositories of knowledge such as websites and school or community servers," he added.

OLPC chairman Nicholas Negroponte said he expected three African countries to announce orders for the XO, which is already being bought by the governments of Brazil, Argentina, Uruguay,

Nigeria, Libya, Pakistan and Thailand. Education ministries in these countries will "distribute them like textbooks," he said.

Negroponte responded to critics of the OLPC project, including Bill Gates, who have variously criticised the XO as underpowered or less useful than cheap, second-hand PCs or mobile phones as educational tools.

"The XO does everything, except store huge amounts of data," he said. "Today's laptops have become obese. Two-thirds of their software is used to manage the other third, which mostly does the same functions nine different ways."

Michalis Bletsas, chief connectivity officer for the OLPC project, said the PC industry should be doing more than trying to "connect the next billion people".

"They should look to connect the next five and a half billion. The way to do it is not to try [to] deploy tried and trusted technology but to try and develop technology specifically targeted to the developing world," he said.

IN BRIEF

» WINDOWS XP AND MEDIA CENTER SUPPORT

Microsoft is adding Extended Support for Home and Media Center editions of Windows XP.

The change will provide an additional five years of support for users of the operating system who choose not to upgrade to Windows Vista in the near future. The extension to 2016 matches the support policy already provided for Windows XP Professional Edition.

Microsoft has undertaken to provide all consumer users of Windows XP with security patches long after its new cousin, Windows Vista, has been rolled out.

Mainstream support expires in April 2009, and although the Extended Support includes security updates, it does not include any warranty claims, non-security hot-fixes or design changes.

If in two years' time you still want new features not already included with your Windows XP system, you'll need to upgrade.

» NORWAY RULES ITUNES COPY PROTECTION ILLEGAL

Norway's consumer ombudsman has ruled that the copy protection system in iTunes is illegal. It ruled that Apple's Fairplay digital rights management (DRM) system, which restricts how tracks purchased on its iTunes Store can be played, was against Norwegian law.

The ruling was prompted by a complaint from Forbrukerradet, the country's consumer rights body. It complained about iTunes restricting playback to just one kind of portable player, Apple's own iPod.

Torgeir Waterhouse, senior advisor at the Norwegian Consumer Council, said that the ruling was a breakthrough that will return to consumers the right to control their music purchases.

"It doesn't get any clearer than this. Fairplay is an illegal lock-in technology whose main purpose is to lock the consumers to the total package provided by Apple by blocking interoperability," Waterhouse told Out-Law.com. "For all practical purposes this means that iTunes Music Store is trying to kill off one of the most important building blocks in a well-functioning digital society – interoperability – in order to boost its own profits."

Google goes back to the drawing board

Google has announced a new version of SketchUp, the easy-to-use 3D modelling program it acquired last year from @Last Software. Version 6 introduces new features and improved performance to a program that brought 3D sketching to people who hadn't drafted a technical drawing in their lives.

Google also announced a competition for anyone using SketchUp and Google Earth to "create a 3D model of something in your neighbourhood, city or state" and upload it to Google Earth's world mapping service. If it is good enough it will appear for others to see, and its creator will be credited.

The most interesting new feature in version 6 is the ability to trace objects on a photograph and convert them into 3D models. The new Text and Dimension tools support font sizes that remain fixed relative to a model, and the text quality has been improved. The new Paste in Place feature remembers precise locations for the quick placement of pasted selections.

The application comes in two versions. SketchUp 6 remains free of charge, while SketchUp Pro 6, which contains extra professional-level features, costs £315. Upgrades from previous versions are free.

The Pro version comes with LayOut, a tool that lets the user see any view in SketchUp 6 as a two-point perspective render. Google claims this will enable users to "quickly and easily recreate this classic style used by draftsmen and illustrators. The result is a simplified-perspective image where all vertical lines in the model appear vertical on your screen, and in prints and image exports."

Unsigned band nets chart success with downloads

Koopa has become the first band without a record company to have a UK top 40 hit, thanks to the growing popularity of music downloads. The Essex band's success in reaching number 31 in January's charts with their song *Blag, Steal or Borrow*, is the strongest sign yet that the internet is living up to its promise as an empowering and democratising force for musicians.

"Just four days ago, nobody had heard of us. Now it seems like everyone has. I can't get my head around it," the band's bassist told the BBC.

Last year, acts such as the Arctic Monkeys and Lily Allen used social networking site MySpace to launch their careers by building up a fan base online. However, both subsequently chose the conventional route of signing with record companies.

Koopa's approach was made possible by a decision to include sales of download-only songs in the charts alongside traditional physical media and songs released both as CD singles and downloads. The change of rules means album track downloads are also counted in the singles charts, even when the track is not released officially as a single.

According to the Official UK Charts Company, 51.6 million singles were bought by download in 2006, up from 26.6 million in 2005.



IN BRIEF

» BLU-RAY DRM CRACKED

The hacker who managed to crack the AACs copy protection on HD-DVD discs has now circumvented the similar system used on the rival Blu-ray technology.

Known only as muslix64, the hacker successfully read the unique key that is used to encrypt a Blu-ray disc's movie content. Strictly speaking he has not cracked AACs, as each disc has its own key and decryption requires a separate key for each movie. In this instance the movie *Lord of War* was decrypted and saved as MPEG2 files. Muslix64 has posted a software tool that others can freely use to decrypt other movie titles.

The cracking of Blu-ray was not unexpected, given that the AACs system is shared by both formats, although implemented in slightly different ways. The HD-DVD crack was revealed at the start of the year. An HD-DVD movie appeared on BitTorrent file-sharing networks a couple of weeks later. Since then many more titles have been copied, according to a spokesman for the Advanced Access Content System (AACs) Licensing Authority.

» TETRIS COMES TO CHIP-AND-PIN TERMINALS

Researchers at Cambridge University have managed to hack tamper-resistant chip-and-PIN terminals so they can play a game of Tetris. Steven Murdoch and Saar Drimer, researchers at the Security Group at the University of Cambridge Computer Laboratory, managed to open up the terminal and replace most of the inner workings that control the screen, card reader and keypad.

"Steven suggested that in order to show that it is completely under our control, we should make it play Tetris (similar to the guys who made a voting machine play chess)," said Drimer on their blog.

Drimer said it was important to remember that even perfect tamper-resistance ensures only that the terminal will no longer be able to communicate with the bank once opened.

"It does not prevent anyone from replacing most of the terminal's hardware and presenting it to customers as legitimate, so freely collecting card details and PINs," he said.

HP's breakthrough chip challenges Moore's Law

HP says it has developed technology that can squeeze up to eight times more transistors on to a normal chip, without using smaller transistors, resulting in the chips consuming far less energy than previously possible.

The company said the breakthrough technology could create chips eight times more powerful, without requiring expensive investment in new equipment to create smaller transistors. HP's idea is to remove most of the circuit wiring that links the transistors in a chip, enabling the transistors to be placed closer together. A layer of wiring, called the crossbar and resembling super-fine chicken wire, is fused on top of the transistors.

This wiring system enables far more interconnections between transistors on the chip, so a few broken connections are unlikely to affect processor performance. This could improve manufacturing yields, keeping prices down.

HP said it plans to build a working prototype chip based on 45nm transistors connected together by crossbar wiring of 15nm width, and that it could create a laboratory prototype within the year.

HP's research would challenge Moore's Law, named after Intel cofounder Gordon Moore. In 1965, Moore observed that the number of transistors that could be fitted on an integrated circuit doubles roughly

every two years. Since then, Moore's Law has proved remarkably prescient, but semiconductor researchers were beginning to wonder how much longer the miniaturisation of electronic components could continue before the fundamental laws of physics make further advances impossible.

Chip manufacturers including Intel and AMD had started to run into problems with increasing miniaturisation, (see next month's feature on nano technology). This led to new approaches to gain more power, such as using multi-core processors.

"A multi-core is an admission of failure," said Stan Williams, a senior fellow at HP in Palo Alto. "[Our technology] is three generations of Moore's Law, without having to do all the research and development to shrink the transistors. If, in some sense, we can leapfrog three generations, that is something like five years of research and development. That is the potential of this breakthrough," he said.

HP left the chip-making business several years ago and now sources its processors from Intel and AMD. However, the company said it plans to license the finished technology by 2010. HP announced its groundbreaking research in the journal *Nanotechnology*, which is published by the British Institute of Physics.

Consumer-friendly 1,000GB disk

Hitachi has launched the first terabyte (1TB) hard disk, which will start shipping in the first quarter of this year. One terabyte is roughly one thousand gigabytes.

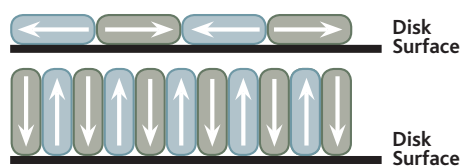
The Deskstar 7K1000 is a 3½in 7,200rpm SATA drive, with an average seek time of 8.7ms. Hitachi said it is targeted at "gaming and high-performance PCs, external storage devices and upgrade applications".

Hitachi said it would sell the disk to consumers in the first quarter of 2007 for the "consumer-friendly price" of \$400 (around £200). Rival disk manufacturer Seagate plans to release its own 1TB hard disk in the second quarter of this year.

"Reaching 1TB of capacity in a disk drive is a testament to 50 years of innovation by the hard disk industry," said John Rydning, research manager for hard disks at IDC.

Hitachi said it had managed to cram 1TB of storage into a 3½in format by using perpendicular magnetic recording technology, which many storage manufacturers began using last year. Perpendicular technology makes it possible to store data up to 10 times more densely than traditional longitudinal hard disks. It does this by arranging bits in an upright position on the disk's platters.

DISK STORAGE TECHNOLOGIES COMPARED



▲ Disks that use perpendicular technology (bottom) can store data more densely than older disks (top)

Toxic bacteria found on mobiles

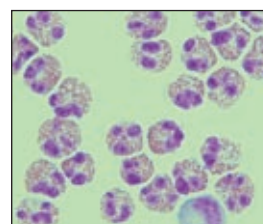
If your mobile phone hasn't killed you yet – or at least made you ill – then you're lucky, if a study commissioned by UK phone retailer Dial-a-Phone is to be believed.

Researchers took swabs from everyday objects and analysed the bacteria found on them. "The shocking results [reveal] that there's more muck on our mobiles than the average door handle, keyboard, bottom of a shoe or even a toilet seat," the survey concluded.

"Mobile phones, like many everyday objects such as telephones and computer keyboards, harbour bacteria. However, being mobile, they are stored in bags or pockets, are handled frequently, and held close to the face," said Joanne Verran, professor of microbiology at Manchester Metropolitan University.

"They come into contact with more parts of our body and a wider range of bacteria than toilet seats," Verran continued. "The phones contained more skin bacteria than any other object; this could be [because] this type of bacteria increases in high temperatures, and our phones are perfect for breeding these germs as they're kept warm and cosy in our pockets, handbags and briefcases.

"These bacteria are toxic to humans, and can cause infections if given the opportunity to enter the body." The answer is to clean your mobile phone regularly with antiseptic wipes.



▲ Meningitis is one of the many harmful germs found on phones